N87-26185

Laboratory Studies of Atomic Oxygen Reactions with Solids

Graham S. Arnold and Daniel R. Peplinski
The Aerospace Corporation
El Segundo, CA

Atomic beam experiments have been performed in this laboratory to investigate the rate of atomic oxygen etching of carbon and polyimide films. The main emphasis of these experiments has been on gaining an understanding of the role of atomic oxygen translational energy and substrate temperature in promoting the reactions. A description of the experimental facility and techniques[1] will be presented. Our published results[2-6] will be reviewed.

1. G.S. Arnold and D.R. Peplinski, "A Facility for Investigating Interactions of Energetic Atomic Oxygen with Solids," ATR-84(8540)-3, The Aerospace Corporation, El Segundo, CA, 16 September 1985.

2. G.S. Arnold and D.R. Peplinski, AIAA Journal, 23, 976, (1985).

3. G.S. Arnold and D.R. Peplinski, "Kinetics of Oxygen Interaction with Materials," AIAA Paper #85-0472, AIAA 23rd Aerospace Sciences Meeting, Reno, NV, Jan. 1985.

4. G.S. Arnold and D.R. Peplinski, AIAA Journal, 23, 1621, (1985).

5. G.S. Arnold and D.R. Peplinski, "Translational Energy Dependence of the O+Polyimide Reaction," AIAA Paper #85-7016-CP, AIAA Shuttle Environment and Operations II Conference, Houston, TX, November, 1985.

6. G.S. Arnold and D.R. Peplinski, AIAA Journal, 24, 673, (1986).